

and Discords with these, as there may be with *musical strings*. Having therefore seen what is the cause of Congruity or Incongruity, those relative properties of fluids, we may, from what has been said, very easily collect, what is the reason of those Relative proprieties also between *fluid bodies* and *solid*; for since all bodies consist of *particles* of such a *Substance*, *Figure*, and *Bulk*; but in some they are *united* together more *firmly* then to be *loosened* from each other by every *vibrative* motion (though I imagine that there is no body in the world, but that some degree of agitation may, as I hinted before, agitate and loosen the particles so as to make them fluid) those *cohering* particles may *vibrate* in the same manner almost as those that are *loose* and become *unisons* or *discords*, as I may so speak, to them. Now that the *parts* of all *bodies*, though never so *solid*, do yet *vibrate*, I think we need go no further for proof, then that *all* bodies have some degrees of *heat* in them, and that there has not been yet found any thing *perfectly cold*: Nor can I believe indeed that there is any such thing in Nature, as a body whose particles are at *rest*, or *lazy* and *unactive* in the great Theatre of the World, it being quite *contrary* to the grand *Oeconomy* of the Universe. We see therefore what is the reason of the *sympathy* or uniting of some bodies together, and of the *antipathy* or flight of others from each other: For *Congruity* seems nothing else but a *sympathy*, and *Incongruity* an *Antipathy* of bodies; hence *similar* bodies once *united* will not *easily part*, and *dissimilar* bodies once *disjoyn'd* will not *easily unite* again; from hence may be very easily deduc'd the reason of the *suspension* of *water* and *Quick-silver* above their usual *station*, as I shall more at large anon shew.

These properties therefore (always the concomitants of fluid bodies) produce these following visible *Effects*:

First, They *unite* the parts of a fluid to its *similar Solid*, or keep them *separate* from its *dissimilar*. Hence *Quick-silver* will (as we noted before) *stick* to *Gold*, *Silver*, *Tin*, *Lead*, &c. and *unite* with them: but *roul off* from *Wood*, *Stone*, *Glass*, &c. if never so little *scituated* out of its *horizontal level*; and *water* that will *wet salt* and *dissolve* it, will *slip off* from *Tallow*, or the like, without at all *adhering*; as it may likewise be observed to do upon a *dusty* superficies. And next they cause the parts of *homogeneous* fluid bodies readily to *adhere* together and *mix*, and of *heterogeneous*, to be exceeding *averse* thereunto. Hence we find, that *two small drops* of *water*, on any superficies they can *roul* on, will, if they chance to touch each other, *readily unite* and *mix* into one 3^d drop: The like may be observed with two small *Bowls* of *Quick-silver* upon a *Table* or *Glass*, provided their surfaces be not *dusty*; and with two drops of *Oyl* upon fair water, &c. And further, *water* put unto *wine*, *salt water*, *vinegar*, *spirit of wine*, or the like, does immediately (especially if they be shaken together) *disperse* it self all over them. Hence, on the contrary, we also find, that *Oyl of Tartar* poured upon *Quick-silver*, and *Spirit of Wine* on that *Oyl*, and *Oyl of Turpentine* on that *Spirit*, and *Air* upon that *Oyl*, though they be stopp'd closely up into a *Bottle*, and *shaken* never so much, they will by no means long suffer any of their bigger parts to be *united* or included

cluded within any of the other *Liquors* (by which recited *Liquors*, may be plainly enough represented the four *Peripatetical Elements*, and the more subtil *Aether* above all.) From this property 'tis, that a drop of *water* does not mingle with, or vanish into *Air*, but is *driven* (by that Fluid equally protruding it on every side) and forc't into as little a space as it can possibly be contained in, namely, into a *Round Globule*. So likewise a little *Air* blown under the *water*, is *united* or thrust into a *Bubble* by the ambient *water*. And a parcel of *Quick-silver* enclosed with *Air*, *Water*, or almost any other *Liquor*, is *formed* into a *round Ball*.

Now the cause why all these included Fluids, newly mentioned, or as many others as are wholly included within a heterogeneous fluid, are not *exactly* of a *Spherical Figure* (seeing that if caused by these Principles only, it could be of no other) must proceed from some other kind of *pressure* against the two opposite flatted sides. This *adventitious* or *accidental pressure* may proceed from *divers causes*, and accordingly must *diversifie* the Figure of the included heterogeneous fluid: For seeing that a body may be included either with a fluid only, or only with a solid, or partly with a fluid, and partly with a solid, or partly with one fluid, and partly with another; there will be found a very great variety of the terminating *surfaces*, much differing from a *Spherical*, according to the various resistance or pressure that belongs to each of these encompassing bodies.

Which Properties may in general be deduced from two heads, *viz.* *Motion*, and *Rest*. For, either this Globular Figure is altered by a *natural Motion*, such as is *Gravity*; or a *violent*, such as is any *accidental motion* of the fluids, as we see in the *wind* ruffling up the *water*, and the *purlings* of *Streams*, and *foaming* of *Cataracts*, and the like. Or thirdly, By the *Rest*, *Firmness* and *Stability* of the ambient *Solid*. For if the including *Solid* be of an *angular* or any other *irregular Form*, the included *fluid* will be near of the *like*, as a *Pint-Pot* full of *water*, or a *Bladder* full of *Air*. And next, if the including or included fluid have a greater *gravity* one than another, then will the globular Form be deprest into an *Elliptico-spherical*: As if, for example, we suppose the Circle *A B C D*, in the *fourth Figure*, to represent a drop of *water*, *Quick-silver*, or the like, included with the *Air* or the like, which supposing there were no *gravity* at all in either of the fluids, or that the contained and containing were of the *same weight*, would be *equally compressed* into an *exactly spherical* body (the ambient fluid forcing equally against every side of it.) But supposing either a greater *gravity* in the included, by reason whereof the parts of it being prest from *A* towards *B*, and thereby the whole put into *motion*, and that *motion* being hindered by the resistance of the *subjacent* parts of the ambient, the globular Figure *A D B C* will be deprest into the *Elliptico-spherical*, *E G F H*. For the side *A* is detruded to *E* by the *Gravity*, and *B* to *F* by the resistance of the subjacent medium: and therefore *C* must necessarily be thrust to *G*; and *D* to *H*. Or else, supposing a greater *gravity* in the ambient, by whose more then ordinary pressure against the under side of the included globule; *B* will be forced to *F*, and by its resistance of